In the Specification:

Please amend the specification as follows:

Paragraph 0001,

This is a continuation application of U.S. Patent Application Serial No. ~~09/499,380~~ 09/449,380, filed November 24, 1999, which in turn is a continuation-in-part application of U.S. Patent Application Serial No. 09/088,385, filed June 1, 1998, now U.S. Patent No. ~~6,084,950~~ 6,089,950. The present invention generally relates to jointed toy figures and more specifically relates to toy figures with an unusually large number of unique articulating parts which give the figures a particularly realistic look and feel.

Paragraph 0054,

Reference is made to FIG. 1 of the drawings which depicts a toy figure designated by reference numeral 10. Toy figure 10 includes a ~~torso~~ trunk 12 and limbs including a left arm 14, a right arm 16, a left leg 18, and a right leg 20, as well as a head 22.

Paragraph 0056,

With reference to FIGS. 1 and 2, first arm segment 24 has a generally spherical top portion 26 with a short trunk 26a depending therefrom and integrally formed therewith to give the appearance of a left shoulder and approximately the upper 1/3 of the upper arm. Spherical body 26 has an arcuate opening 27 into the interior of first arm segment 24. A joint member 25 having a lever arm 28 is pivotally attached to first arm segment 24 at joint 14a. Lever arm 28 terminates at one end in a disk 30 and at the other end in a ring 31. Ring 31 has a bore for mounting joint member 25. Ring 31 of lever arm 28 extends through arcuate

opening 27 and is pivotally mounted on pivot pin 33 formed in the first arm segment as described below.

Paragraph 0059,

Left arm 14 further comprises a third arm segment 58 which acts as a double pivot member ~~comprising~~. Third arm segment 58 has a plate 60 with bores 62 and 64 extending transversely therethrough at the opposite ends of the plate. Third arm segment 58 is connected through bore 62 to pin 50 in second arm segment 42 to provide joint 14c, a pivot joint.

Paragraph 0064,

Left arm 14 further comprises a fifth arm segment 80 which is rotatingly connected to fourth arm segment 66 at joint 14e by lower arm joint member 82. Joint member 82 comprises a disk 84 and a plate 86 spaced apart from each other by a short shaft 88. Fifth arm segment 80 comprises complementary shells 80a and 80b having a pivot pin 90 with a bore 92 therein with complementary fifth arm segment shell 80b having an assembly pin 94 extending therefrom to fit within bore 92. Fifth arm segment 80 also has a circular interior space 96 and a top wall 98 with a bore 100 therethrough in communication with interior space 96. As will be appreciated from an inspection of FIGS. 1 and 2, fifth arm segment 80 and fourth arm segment 66 are essentially identical in structure and operation but are of different respective dimensions. When fourth and fifth arm segments 66 and ~~88~~80 are rotatingly connected at joint 14e by lower arm joint member 82, fourth and fifth arm segments 66 and 80 are mated at their respective walls 74 and 98 with shaft 88 extending through bores 76 and 100 and with disk 84 seated on the interior surface of wall 74 and plate

86 seated on the interior surface of wall 98. Thus fourth and fifth arm segments 66 and 80 are capable of rotating with respect to one another 360° about shaft 88, with disk 84 rotating in interior space 72.

Paragraph 0070,

In one embodiment, left leg 18 comprises a plurality of leg segments which are interconnected at a series of joints to provide the articulating leg whose structure and movement correspond to arm 14 described above. Thus, leg 18 comprises first, second, third, fourth and fifth leg segments 124, 142, 158, 166, and ~~180~~181 which are analogous to the left arm segments 24, 42, 58, 66 and 80, as well as to the right arm segments 24r, 42r, 58r, 66r and 80r and right leg segments 124r, 142r, 158r, 166r and ~~180r~~181r.

Paragraph 0071,

With reference to FIGS. 1 and 2, first leg segment 124 has a generally spherical top portion 126 with a short trunk 126a depending therefrom and integrally formed therewith to give the appearance of a left hip and approximately the upper 1/3 of the upper leg. Spherical body 126 has an arcuate opening 127 into the interior of first leg segment 124. A joint member 125 having a lever leg 128 is pivotally attached to first leg segment 124 at joint 18a. Lever ~~arm~~leg 128 terminates at one end in a disk 130 and at the other end in a ring 131. Ring 131 has a bore for mounting joint member 125. Ring 131 of lever leg 128 extends through arcuate opening 127 and is pivotally mounted on pivot pin 133 formed in the first leg segment as described below.

Paragraph 0074,

Left leg 18 further comprises a third leg segment 158 which acts as a double pivot member ~~comprising~~. Third leg segment 158 has a plate 160 with bores 162 and 164 extending transversely therethrough at the opposite ends of the plate. Third leg segment 158 is connected through bore 162 to pin 150 in second leg segment 142 to provide joint 18c, a pivot joint.

Paragraph 0078,

When second leg segment and fourth leg segment are pivoted toward each other, each of the respective leg segments are capable of pivoting through an arc of about 90° (analogous to arcs C and D) such that the second and fourth leg segments may be pivoted a total of approximately 180° with respect to one another with the third leg segment thus functioning as ~~an elbow~~a knee joint. Because the third leg segment 158 uses a double pivot arrangement whereas a natural human ~~elbow~~knee joint has a single pivot point second and fourth leg segments are spaced apart from each other. To fill the gap in the outer surfaces of the second and fourth leg segments 142 and 166 where they attach to third leg segment 158, third leg segment 158 is provided with wing-like extensions 180 which extend outwardly and curve slight downwardly from the outer edge 183 of third leg member 158 to fill in the gaps between second and fourth leg segments 142 and 166 which are needed to assure that articulating left leg 18 has a full range of motion about third leg member 158. The wing-like extensions thus allow leg 18 to exhibit a relatively continuous outer leg surface where second and fourth leg segments 142 and 166 are joined to third leg segment 158.

Paragraph 0079,

Left leg 18 further comprises a fifth leg segment ~~180~~181 which is rotatingly connected to fourth leg segment 166 at joint 18e by a disk 184 spaced apart from fifth leg segment ~~180~~181 by a short shaft 188. Fifth leg segment ~~180~~181 has a bore 190 extending therethrough at its lower end. When fourth and fifth leg segments 166 and ~~188~~181 are rotatingly connected at joint 18e by inserting disk 184 into interior space 172 of fourth leg segment 166, fourth and fifth leg segments 166 and ~~180~~181 are mated at their respective walls 174 and 198 with shaft 188 extending through bores 176 and with disk 184 seated on the interior surface of wall 174. Thus fourth and fifth leg segments 166 and ~~180~~181 are capable of rotating with respect to one another 360° about shaft 188, with disk 184 rotating in interior space 172.

Paragraph 0080,

Left foot 202 includes L-shaped left foot shells 202a and 202b. Left foot shell 202a has a pivot pin 204 having a bore 206 therein positioned at the upper portion of the "L" and a pivot pin 208 having a bore ~~210~~211 therein positioned at the terminal end of the base of the L. Foot 202 further comprises large toe member 210 and smaller toe member 212, which have respective proximal ends 210a and 212a, and bores 210b and 212b extending transversely therethrough. Toe members 210 and 212 are pivotally mounted on pivot pin ~~206~~216 and fifth leg segment ~~180~~181 is mounted to pivot pin 204. Left foot shell 202b connects to foot shell ~~202~~202a by mating assembly pins 214 and 216 which fit in bores 206 and ~~210~~211.

Paragraph 0085,

With further reference to FIGS. 1 and 2, trunk 12 comprises an upper torso 250 and a lower torso 252 pivotally and rotatingly connected to one another at joint 12a. As best seen in FIG. 1, upper torso 250 has a reduced lower end 256 which is defined by a gently tapering wall 258 having a collar which is partially seated in upper opening 260 in lower torso 252. Upper opening 260 thus forms a substantially circular seat to meet with the reduced end 256 of upper torso 250 such that trunk 12 is capable of articulating when upper torso 250 and lower torso 252 are connected by body joint 254. In a particularly preferred embodiment, upper torso is capable of pivoting left to right with respect to the lower torso over an arc of about 30° (e.g., 15° to each side) of an upright position and is capable of pivoting front to back by approximately 30° (5° back and 25° forward) to simulate a range of motion about the waist of a human being. Body joint 254, which is more fully described below with reference to FIGS. 9-11, functions as a ball and socket joint.

Paragraph 0086,

In one embodiment, the head 22 of toy figure 10 is substantially hollow and cast of a thermoplastic resin such as PVC, preferably using a rotational molding technique as known in the art. The base 261 of the head has an involuted hemispherical bottom wall 262 defining a cavity 263 with a bore 264 therethrough at the top of the hemisphere. Head 22 is attached to upper torso 250 by a head joint member 266 which has a generally spherical body with an upper portion 267 supporting a mushroom-shaped attachment member 270 which is sized and shaped to snap-fit through bore 264 and be retained within the interior space of head 22 with the upper surface 267 of head joint 266 residing in cavity 263. Joint 266 has a second attachment disk 269 (analogous to disk 30 of joint member 25) which is pivotally connected

inside of joint member 266 via lever arm 274 in an analogous manner to the slot 280 connecting lever arm ~~25~~28 and first arm segment 24 as discussed below. When head 22 is connected to trunk 12, head 22 is capable of pivoting about a pivot joint located in head joint 266 (analogous to the pivot joint in first arm segment 24) as well as rotating about disk 269. Thus, head 22 is capable of swiveling and nodding relative to torso 250.

Paragraph 0098,

The left leg is assembled in essentially the same manner using three ultrasonic welding steps as described above for assembly of the left arm. Thus, referring to FIGS. 1 and 2, in step (1), left first leg segment 124, left leg shells 142a and 142b and third left leg member 158 are joined in an ultrasonic welding step to provide a first leg subassembly; in step (2), a further ultrasonic welding step, the first leg subassembly is pivotally connected by way of bore 164 in the portion of third leg member 158, extending from the first leg subassembly to pin 168 of leg shell 166a and to fifth leg segment ~~180~~181 by inserting disk 184 into a receptacle 172 to form a second leg subassembly; and in step (3), toe members 210 and 212 are pivotally mounted on pin 208 and pin 204 is pivotally mounted through bore 190 of fifth leg segment ~~180~~181 and the foot shells 202a and 202b are brought together edgewise with assembly pins 214 and 216 being received in bores 206 and 210, respectively, prior to ultrasonic welding to capture second leg subassembly via bore 190 and to capture toe members 210 and 212 to complete left leg 18.

Paragraph 0120,

An embodiment of the molding process of the present invention for producing a ball and socket body joint 254 is illustrated in FIGS. 9-11. Body joint 254 comprises a first joint

member 450 (shown in FIG. 9) and a second joint member 300 which are capable of pivoting and swiveling relative to one another. First joint member 450 includes a ball member 306 and a plate 310 spaced at either end of a shaft 308. First joint member 450 is made of a first thermoplastic composition, preferably ABS. As shown in Figure 10, first joint member 450 is inserted into mold 460 so that a major portion of ball member 306 (at least greater than half of its surface area and preferably more than 75% of its surface area) is positioned within mold cavity 462 and a minor portion of ball member 306 (less ~~then~~than half of its surface area) as well as shaft 308 and plate 310 are positioned within mold 460 so that they are outside of communication with mold cavity 462. In an injection molding step, a second thermoplastic material is injected into mold cavity 462 to establish second joint member 300 which has an interior surface which is formed around the outer surface of ball 306 to establish the socket of body joint 254. Figure 11 shows the completed body joint 254 with a major portion of ball 306 (shown in phantom lines) residing within body 300 of body joint 254.

Paragraph 0128,

In another of its aspects, the present invention entails a method for making a body part having pivotable digits, such as a hand 102 of a toy figure 10 having pivotable finger members 400, 402, and 404. Referring to FIGS. 12 - 16, this embodiment of the invention uses injection molding to incorporate into an articulable joint, in situ, an insert piece comprising molded finger members 400, 402, 404. These finger members are each molded of a first thermoplastic material, preferably ABS, generally in the shape of naturally-positioned, relaxed fingers. Finger members 400, 402, and 404, each of which has a proximal end 400a, 402a and 404a, with a respective bore 400b, 402b and 404b, extending transversely therethrough for receiving a pivot pin 406 on which finger members 400, 402 and 404 are

pivotally mounted on the pin, as shown in Figure 14. The pivotally mounted finger members are centered on pivot pin ~~136~~406 with clearance at each end of the pin (i.e., between finger member 400 and pin head 408, and between finger member 404 and pin fastener 410). As best seen in FIGS. 13 and 14, the proximal ends of the finger members, 400a, 402a and 404a, have a combined width that is less than the length of pivot pin 406. In this configuration having the combination of finger members 400, 402 and 404 pivotally attached to pin 406 constitutes a first joint member (pivotally mounted on pin ~~136~~406 to be used) as an insert part for injection molding of left hand 102. Additionally, a second insert part for injection molding of left hand is provided by wrist joint member 412 (preferably made of ABS) consisting of shaft 414 attached at one end to disk 416 and at the other end to a ring 418. Ring 418 has a bore 420 therethrough and notches 422 to prevent relative rotation of the ring with respect to bore liner 424 (made of second thermoplastic material) which is molded to the ring in an injection molding step. See also FIG. 16. Bore liner 424 increases pivotal friction achieved when hand 102 is pivotally mounted on pivot pin 90 of ~~fourth~~fifth arm segment 80 during assembly of left arm 14 to resist unintended movement of joint 14f. See Figures 1 and 2.

Paragraph 0129,

As depicted in FIG. 16, left hand 102 is completed in a vertical injection molding step wherein the exposed ends of pivot pin 406 (including head 408 and fastener 410) and wrist joint member 412 are positioned opposite each other in insert mold 430 having a first cavity 432 sized and shaped to form the body 436 of hand 102 including a thumb 438. Hand portion 436, the shape of which is defined by the shape of the mold, forms around and captures pin 406 (preferably encasing pin head 408 and fastener 410) to secure the fingers pivotally to

hand 436 and also forms around shaft 414 and disk 416 of wrist joint member 412. Second cavity 434 defines the surface of bore liner 424 which is formed simultaneously with hand portion 436 to complete left hand 102 in the molding process. The injection mold 430 maintains the finger members 400, 402 and 404 outside of communication with the cavity of the injection mold so that the material used in forming hand portion ~~162~~436 does not fill the areas between the finger members. The molding does, however, form flush with the exposed sides 400c and 406c of finger members 400 and 406, thereby capturing the ends of pivot pin 406 along with pin head 408 and pin fastener 410.